M. <u>Administration HQ</u> (Kabul)

Director	1
Accountant Officer	2
Personnel Officer	2
Transport Officer	1
Assistant Transport Officer	2
Store and Supply Officer	1
Typist (Farsi - English)	4
Water Supply Clerk	2
Sanitarian Clerk	1
Workshop Clerk	1
Design & Planning Clerk	1
Driver (Vehicles)	65
Helpers (trucks)	14
Attendants (office)	12
Attendants (store)	2
Storekeeper	10
Assistant Storekeeper	2

RURAL WATER SUPPLY WORK PLAN FOR 1354

(21st March 1975 - 20st March 1976)

1. INTRODUCTION:

In the year 1352 the Environmental Health Department succeded in preparing its first work plan (mid 52 - end 53) starting Aqrab 1352 (an 18 months programme) which included the construction of 36 reticulated system, and installation of 240 hand pumps, and serving a total of well over 300,000 beneficiaries, this programme is now successfully under completion.

It is much to our pleasure now to present the 1354 work programme (attached drawing Annex No. 1). Starting Hamal 1354 (March 1975) a 12 month programme covering the same 12 provinces and consistings of 36 reticulated systems and 240 hand pumps installation which will all together serve another 300,000 beneficiaries.

In the process of broadening the scope and areas of activities of the E.H.Dept. in the year 1354 a plan of water supply for 3 additional provinces (Badakhshan, Ghor, Oruzgan) is under preparation and will be subbmitted shortly. In this plan according to the climatical condition of the areas, 18 reticulated systems and 30 hand pumps installation have been recommended which will boost the numbers of beneficiares for the year 1354 to nearly 400,000 people.

It is expected that this year programme of the E.H. Dept. in the light of the experiences aquired and the trayning that our field teams went through will be able to carry out this job with better efficiency and experience as a country wide programme.

2. TYPE OF SYSTEMS:

It is planned that this programme will be conducted in the same 12 provinces of the R.W.S. Project namely Takhar, Kunduz, Balkh, Faryab, Jowzjan, Kandahar, Herat, Badghis, Nangarhar, Farah, Nimrose, Zabol. In each province 3 localities have been selected on the basis of the water needs and piority considerations.

The type of Water Supply Systems recommended in the areas shown on the attached plan will be defined as follow:

A. Reticulated systems consisting of one deep well, one water storage reservoir, piped distributions system, which water can be conveyed to certain reasonable distances according to areas and erogated through puplic taps.

Reticulated system type A as defined in the attached drawing (Annex No. 1) consist of reservoir (elevated or surface) or a stand posts with taps and a pipe netting of over 500m. distace and type B consist

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of small size reservoir or stand post with a pipe netting system of 200 to 500 m. This type of system can be left with the prevision of extention to meet the future demands of the community.

B. Hand pumps will be installed on protected shallow wells according to sanitary standard regulations and requirements.

This programme will be carried out parallel to our reticulated system in the most needy areas of each 12 provinces in question. The hand pumps will be installed on the following type of wells: hand dug, drilled by the light EDECO drlling rigs manned and directed by the E.H. department, and on existing dug wells after being deepened relined and properly protected.

3. SOURCE PRIORTY CONDITIONS:

For selection of priorities in water supply systems economy is the main objective, Bearing this fact in mind the first priority will be given to areas under the programme, where springs can be tapped, second priority will be given to tapping ground water through drilling deep wells, which undoubtedly requirs H.D. pumping units, third priority will be surface water treatment which by comparison is costlier than the two aforementioned sources of course this type of systems will avoided where-ever possible.

4. WORK METHODOLOGY

A. Preliminary Survey consist of priority selection as far as the health problems and water scarcity is concerned. The group of preliminary surveyors investigating the possible collaboration and participation of community for the project.

B. Sanitary Survey the experience of the past year has made more and more evident the need for detailed survey of the villages particulary in the case of larger systems for more economical design of the systems, it is imperative to know the exact size and location of the present population, and to collect adequate data to permit more realistic estimate of future population. Another no less important consideration is the actual health benefit brought to the villagers by the systems constructed: to ensure that the system benefits to as large a proportion of the villages as possible, the design must similarly be established with full knowledge of local conditions and particularly of the existence and location of alternative unsafe sources of water.

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C. Hydrogeological Survey on the basis of the report submitted by preliminary survey groups, a team of hydro-geologist will visit the areas and recommend the source for water supply system.

D. Topographical Surveys made so far are not altogether sufficient, they need to be completed for the above information: Sanitary Survey this has been accomplished in a few instances, and the sanitarians in charge of the area appears to be the most suitable person for this task. This year, it is planned to put a definite emphasis on this point through collaboration with BHS and through practical training.

E. Drilling natrually the work plan presented is based 80% on drilling both for deep and for shallow wells.
The latest verbal agreement with the Groundwater Department of the Ministry of Agriculture and Irrigation which has not become official yet, is that the 71 Speed Star and the Failing Rotary rigs will be released by them to work only for the Rural Water Supply Project under its direct control with the possibility of the second 71 Speed Star if its release from the AAA authority is properly negotiated and speedly concluded.
The above three rigs joined with the project owned Dando 800 rig, at last commisioned and now working in the fields, will form a fleet of four medium capacity rigs which will meet the requirement of the R.W.S. Project as far as what we call deep wells is concerned, for the installation of the helical spindle diesel driven pumps in the 36 schemes of the 1354 work plan.
The rigs if kept in full efficiency and moved without loss of time from site to site for lack of transport, without work delays for lack of fuel, as experienced during the 1353 work season, each can drill a borehole a month thus 48 in one year far more than what is expected in 1354 work programme.
Therefore if the above conditions do not materialize it is impossible to guarantee the fullfilment of 1354 work programme as far as the large schemes are concerned.
As per the small EDECO rigs these will continue to drill the shallow wells for the installationof the hand pumps as the main work assigned to them, but where the ground permit they will also drill deep wells for installation of the helical pumps for the large schemes.
These rigs have proved very successful and they can drill easly two wells a month to the depth of 20-25 m. Three of this rigs are now in operation the fourth one will shortly join the fleet as soon as a drilling crew in recruited.

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5. ENGINEERING

5.1. Design

As much flexibility as possible will be observed in respect of design parameters. During the past year, it was recognized that the standards suggested at the early start of the R.W.S. programme cannot be used rigidly. The procedure now is to study each case on its own merits and with the view of arriving, sooner or later, at standards well adapted to rural Afghan conditions. The collection of actual consumption figures through the use of a master meter on each system is also to help.

At present instead of the 30 to 70 litres/cap/day recommanded in the above named standards figures as low as 15 litres/cap/day are used for present consumption.

5.2. Construction

Construction works are mainly carried out through construction teams stationed at zonal centres. Shallow wells and hand pump installation will be supervised by senior zonal sanitarians; elaborate reticulated systems will be carried out by zonal teams under the supervision and instructions of the engineer in charge.

6. WATER QUALITY CONTROL

A.1. Chemical analysis will partly be conducted through G.W. Dept.immediately after drilling. In order to have more complete chemical analysis E.H. Dept. will be trying to involve laboratories in PHI in this matter.

A.2. Bacteriological analysis it is decided to provide each zonal centre with mellipore bacteriology test kits. Though this is not a subtitute for regular laboratory bacteriology analysis.

7. ORGANIZATION

The different w/s activities will be carried out through the following sections:

a. Planning and design
b. Water supply
c. Sanitation
d. Administration
e. Four zonal centres (Herat, Kandahar, Balkh, Kunduz)

A fifth zonal centre is going to be established for the central provinces of the country.

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In view of the experiences gained from the past, and for better execution and implementation of the works it is envisaged that staffing of the department should be increased as shown in Annex 2.

8. TRAINING

The efforts to improve the capabilities of the various categories of staff of the E.H. Dept. will continue. Fellowships abroad are requested from WHO for two engineers, one surveyor and one sanitarian. Besides, in service training will continue, particularly for the engineers, in order to improve further their designing capabilities.

Training courses in the country will be directed this year at two categories of personnel: the sanitarians and laboratory technicians. The laboratory services of the Ministry of Public Health will be requested to conduct sepcialized refresher training in analysis of water for a limited number of technicians to make the absolutely proficient in a small number of water tests, at the beginning this may be limited only to the coliform test; in this way it will be possible to despatch these technicians with some confidence to regional laboratories where they will have to operate under limited or no technical supervision.

Since the larger number of sanitarians are attached to the BHS, it is necessary to organize a close collaboration with this service in order that the sanitarians can contribute more fully to the R.W.S. programme. Courses will be organized for the sanitarians with objective of making them proficient for the following tasks:
Geographical and sanitary survey of villages, disinfection of shallow wells and of water supply systems, field testing of water sample collection installation and maintenance of hand pumps, and also construction of latrines as forseen in the Environmental Health programme. These training courses will be kept eminently practical and will be closely coordinated with field activities; for this reason, the possibilities of conducting these courses in the regions are being considered.

9. MAINTENANCE AND OPERATION:

Over the past year a numbers of diesel pumps have been installed and are in effective operation; on the other side hand pumps maintenance appreciably improved. Never the less in order to achieve greater consistency and uniformity of results it is needed to prepare this year's, written instructions for maintenance and operation of various type of installation.

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Maintenance of hand pumps and water supply schemes should preferably be conducted in 2 steps:

a. Preventive maintenance
b. Repairs

for which the zonal saitarians and teams are resposible. Part of the simple preventive maintenances will be carried out by local people according to instructions given by zonal or local sanitarians and this will be supplemeted by periodic visits of mechanics every six months to avoid possible break down of pumps.

In genral, preventive maintenances will be conducted by zonal sanitarians. As the local B.H.S. sanitarian presently stationed in Wolloswalis would be of great help in this respect, E.H. Dept. is studying all possible means to utilize them for this purpose.

To secure good operation and maintanence E.H. Dept. is planningtoprepare guide lines in printed form and easy understandable languge to be circulated to zonal centers as an easy referrence for sanitarians local pump opertors. Futhure more we have a chart under preparation which indicates the monthly hours the diesel pumps will operate. These forms will be filled in by pump operator.

Maintenance and operation will include
For hand pumps

a. Greasing
b. Replacement of worn-out or broken parts
c. Drainage in the proximity of well
d. Disinfection (occasionally)

For schemes

a. Stand posts or reservoirs cleaning
b. Taps repair or replacement
c. Valves replacement
d. Leaks stoppage
e. Pump house maintenance
f. Sanitary protection of deep well
g. Engine maintenance

10. <u>EVALUATION</u>

Head of E.H. Dept., UNICEF R.W.S. Project Officer, WHO Sanitary engineer and senior engineers of the project will periodically asses the construction and functioning of the systems and evaluete the different aspects of work.

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At the ~~present~~ situation, it is considered imperative that some steps should be taken in respect ~~of the evaluation~~ of health aspects of Rural Water Supply Projects. For the purpose E.H. Dept. is intended to prepare some charts and questionaires that will duly be sent to Health Centers, local sanitarians municipalities and other organizations, which after filling up will be sent back to E. H. Headquarter and kept in files.

Of course there will be different types of questionaires that will be filled in before and after the w/s installation.

With a certain amount of certainty we can say, by comparison of these charts and questionaires this evaluation can be accomplished.

11. CONCLUSION

The 1353 work programme which was planned for 36 schemes and 240 hand pumps is successfully under completion, but it is worth mentioning that 1353 programme was an 18 months programme. 1354 programme is one year (12 months) planning for 36 schemes and 240 hand pumps which with contrast to 1353 shows an increase in the volume of works . We are absolutely confident that with our trained teams having field experiences it is possible to cope with the increased volume of work in 1354 programme, provided the work of drilling should be at least 2 months ahead of our construction programmes, and undoubtedly, timely reception of the necessary material and equipments lately ordered by UNICEF will promise the progress of the project works and help in time the completion of it.

APPENDIX 2.

Project Staff

A.	Directorate (in Kabul) HQ	
	General Director EHD	1
	Deputy Director EHD	1
	Secretary	1
B.	Planning & Design	
	Director Engineer	1
	Design Engineer	8
	Topographers	4
	Draftsman	6
	Sociologist	1
	Cost Estimators	3
C.	Water Supply Section	
	Director Engineer	1
	Engineers (sanitary)	4
	Technicians (from technical School Graduates)	8
	Senior Sanitarians	8
D.	Workshop HQ (Kabul)	
	Mechanical Engineer	1
	Mechanical Assistant Engineer	1
	Mechanical Superintendent(from technical institutes)	2
	General Mechanical Fitters	2
	Blacksmith/welder	1
	Pipe fitters	2
	Carpenters	2
	Mason	1
	Welder	1
	Electrician	1
E.	Zonal Centres x 4	
	(Hand Pumps & Deep Well Pumps Installation & Maintenance)	
	Zonal Director (civ. Eng.)	1
	Clerk for office and store	1
	Mechanical Superintendent (TI Graduate)	1
	Mechanical Fitter	2
	Electrician (motor cars)	1
	Pipe Fitter	2
	Carpenter	2
	Mason	2
	Senior Sanitarian	1
	Blacksmith/welder	1
	Air compressor driver operator	1
	Labourers	4

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F. Light Percussion Drilling Rigs x 4

Driller	1
Assistant Driller	1
Skilled Labourers	2

G. *Heavy Duty Drilling Rigs x 4

Head Driller	1
Driller	1
Assistant Driller	1
Skilled Labourers	2
Drilling Rigs General Mechanic	1

H. **Water Schemes Construction Teams x 12

Construction Supervisor	1
General Mechanic	1
Assistant Mechanic Pipe Fitter	1
Mason	1

I. Provincial Sanitarian

Chief Sanitarian	26
Mechanical for each province (to supervise and further train local mechanics appointed and paid by the communities maintain and run pumps)	26

J. Chief Waste and Rodent Control

Chief Sanitarian	1
Senior Sanitarian	2
Trainee Sanitarian	2

K. Food Hygiene and Pollution Control

Chief Sanitarian	1
Senior Sanitarian	2
Trainee Sanitarian	2

L. Housing and Industrial Hygiene

Chief Sanitarian	1
Senior Sanitarian	2
Trainee Sanitarian	2

* Supplied by the Ground Water Department, Drilling Division of the Ministry of Agriculture and Irrigation.

** The construction teams are mobile as they have to be shifted according to seasonal conditions.

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REPUBLIC OF AFGHANISTAN

MINISTRY OF PUBLIC HEALTH

Environmental Health Department

GOVERNMENT/ UNICEF/ WHO

Rural Water Supply Work Programme

For

The year 1354

(March 21, 1975-March 20, 1976)

KABUL

